

REMARKS

This communication is in response to the Office Action of March 8, 2007.

The Examiner objected to minor informalities in the specification. Applicants have made the requested correction.

Claims 11-20 were rejected under 35 U.S.C. 101. Claims 11 and 19-20 were cancelled. Independent claim 12 and 17 were amended to recite a tangible result. Applicants respectfully submit that by virtue of these amendments the 35 U.S.C. 101 rejections have been addressed.

Claims 1-13, 15, 17, 19, and 20 were rejected under 35 U.S.C. 102(e) over KONETSK1. Claims 14, 16, and 18 were rejected under 35 U.S.C. 103 over KONETSK1. In response to these rejections, Applicants have amended the independent claims to distinguish over the cited art. In particular, claims 1 and 10 were amended to recite the use a plurality of virtual device drivers. Claims 1, 10, 12, and 17 were amended to recite with more particularity a sound card having an audio processing unit interacting with a memory, such as a system memory, to process the audio data. Individual claims such as claims 2, 10, and 17 were amended to recite additional details regarding an audio codec.

Independent claims 1, 10, 12, and 17 were also amended to include the limitation that the system supports “outputting audio from open applications according to the user’s selection of virtual devices, wherein the user’s selection associates one or more virtual devices with the audio stream of each of one or more applications and audio streams of open applications are simultaneously output.” Support for the amendments is found in the figures, original claims, and paragraphs [0018]-[0019] and [0029]-[0030].

KONETSK1 has a signal processor 108 (which is described in paragraph [0026] as being an audio accelerator card) that includes a DSP 112, a single DAC 114, and channel routing logic 115 coupled to the DAC. A separate processor 102 external to the audio accelerator card 108 runs media applications. The output of processor 102 are media channels that are routed via an I/O bus 110 to the audio accelerator card 108. In the audio accelerator card 108, a single DAC is illustrated and channel routing is performed in the analog domain using channel routing logic 115 as described in paragraph [0027].

Applicants can find no teaching or suggestion that KONETSK1 discloses the limitation of claim 1 and comparable limitations of claims 10, 12, and 17 of “outputting audio from open

applications according to the user's selection of virtual devices, wherein the user's selection associates one or more virtual devices with the audio stream of each of one or more applications and audio streams of open applications are simultaneously output." The description in paragraph [0029] of KONETSKI for example, describes selecting between two multi-channel media applications. That is, KONETSKI apparently describes processing the output of one application at a time. Additionally, the single DAC of KONETSKI apparently limits the capability of KONETSKI to arbitrary process different applications simultaneously. That is, in KONETSKI, the single DAC supports generating only one analog signal, which is then routed in the analog domain.

In contrast to KONETSKI, an embodiment of Applicant's invention supports an arbitrary association of applications to virtual devices and the simultaneous outputting of audio from open applications. As illustrated in Figure I, in one embodiment the virtual device drivers appear to the OS as multiple device drivers. The assignment of applications to virtual devices is completely arbitrary, including an embodiment in which "multiple applications may be assigned to a single device" as described in paragraph [0026]. The set of virtual device drivers also "supports the mixing of data streams from multiple applications" and as stated in paragraph [0031], in one embodiment, "APU 215 multiplexes the separate audio data streams from all open applications." It is respectfully submitted that KONETSKI does not teach or suggest a system in which multiple applications may be arbitrarily assigned to different virtual devices in the manner of the claimed inventions to support "outputting audio from open applications according to the user's selection of virtual devices, wherein the user's selection associates one or more virtual devices with the audio stream of each of one or more applications and audio streams of open applications are simultaneously output."

Claims 1 and 10 recite the limitation of a plurality of virtual device drivers. Applicants respectfully submit that KONETSKI does not teach or suggest the limitations of claim 1 of a "plurality of virtual device drivers to write audio data streams from open applications into a system memory accessible by a sound card and to program the sound card to associate audio data streams with open application." Claim 10 includes a similar limitation of virtual device drivers to write to memory. In contrast, in KONETSKI the audio accelerator card directly receives a media channel from the processor with no buffering through system memory and no virtual device drivers are described.

Claims 12 and 17 also include limitations that the sound card reads audio data stored in system memory. As previously described, the audio accelerator card of KONETSKI does not read audio data from system memory.

Claims 2, 10, and 17 also have a limitation that the codec has multiple DACs. Figure 1 of KONETSKI illustrates a single DAC. In KONETSKI the analog output of the single DAC is then routed to audio channels in the analog domain. In contrast, as illustrated in Figure 2 of Applicants' specification, in one embodiment multiple DACs 230, 235, 240, 245, 250, and 255 are provided in the audio codec 225 to support simultaneously outputting audio from a plurality of open applications according to the user's selection of virtual devices assigned to each application.

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is now in condition for allowance. The Examiner is invited to contact the undersigned if there are any residual issues that can be resolved through a telephone call.

The Commissioner is hereby authorized to charge any appropriate fees to Deposit Account No. 50-1283.

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